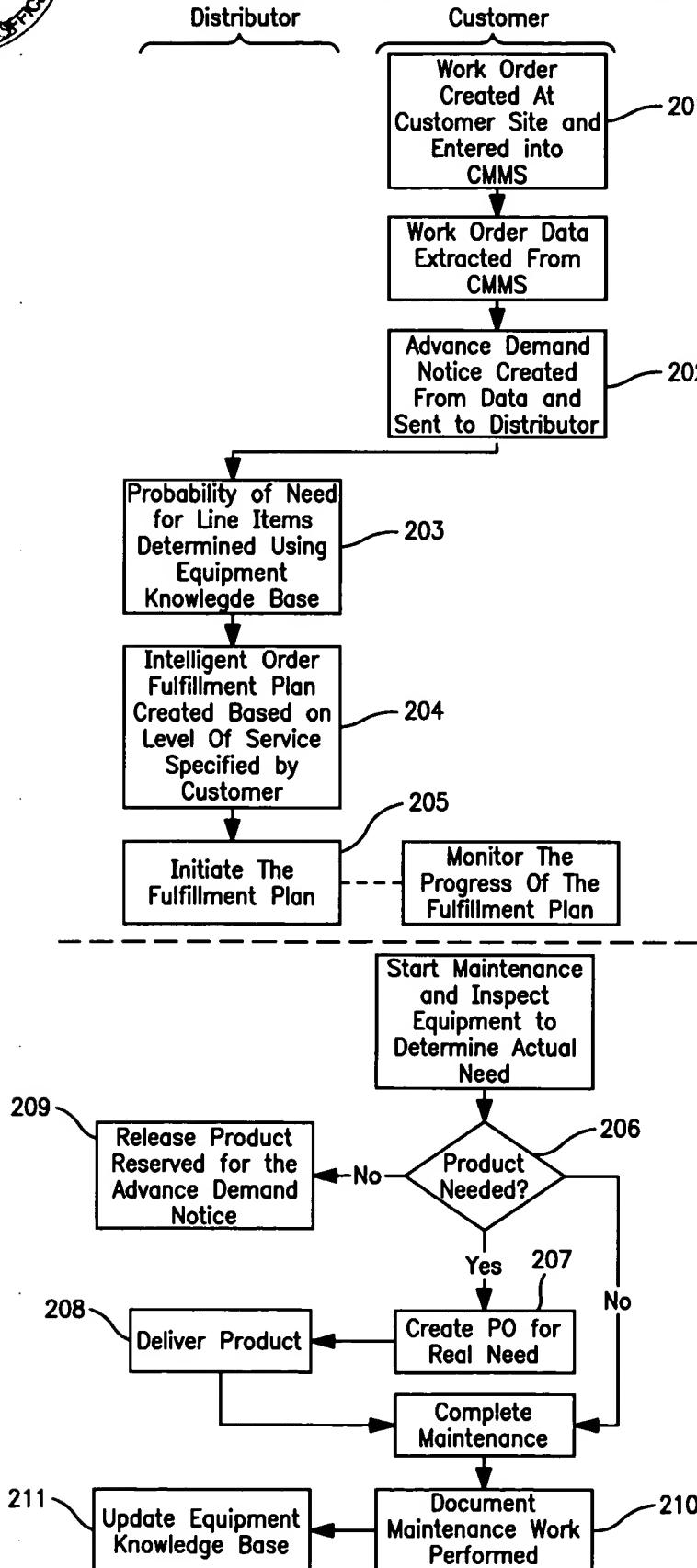




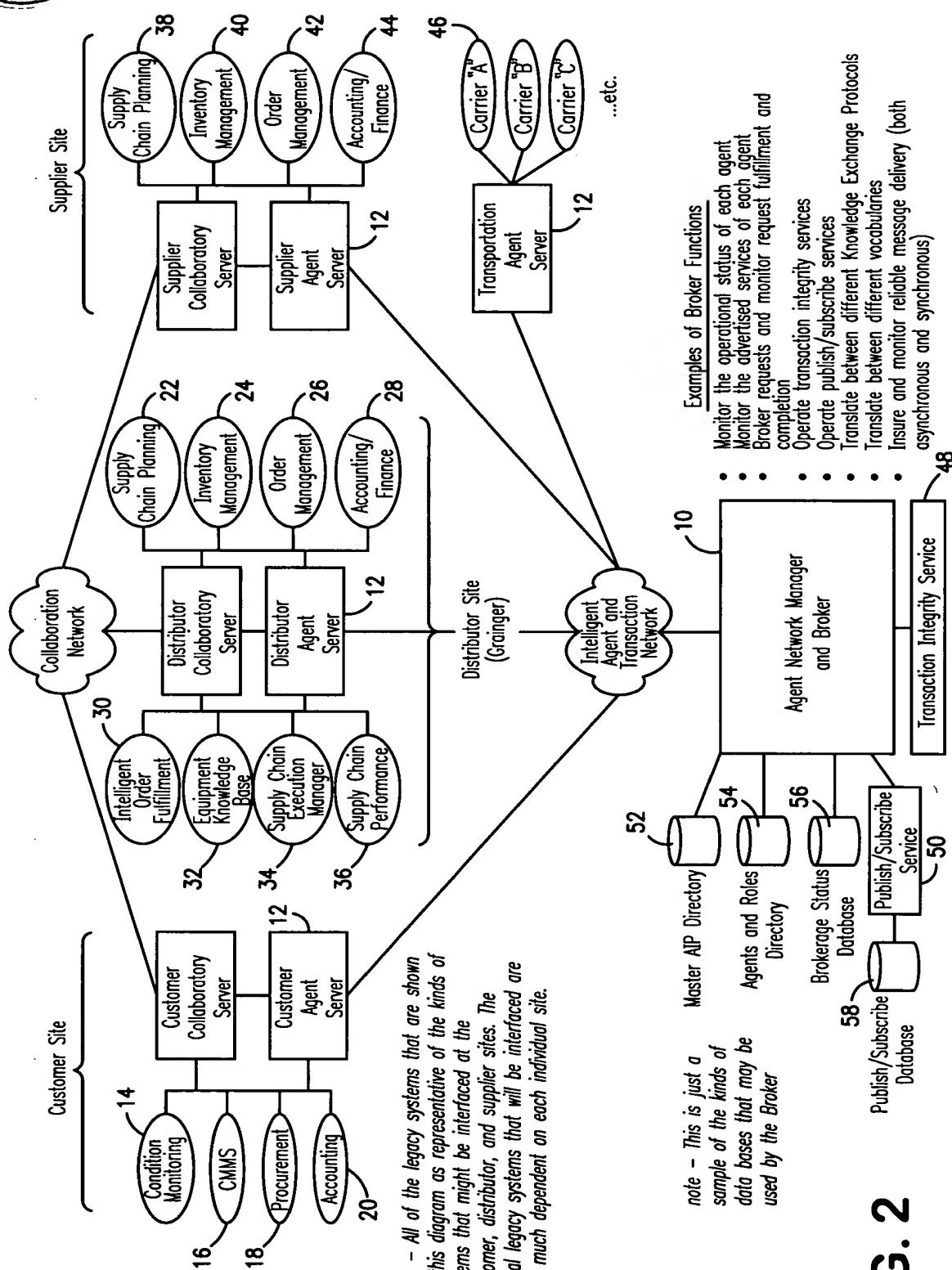
## MRO Integrated Supply Chain Management Overview



**FIG. 1**



## Intelligent Agent and Transaction Network

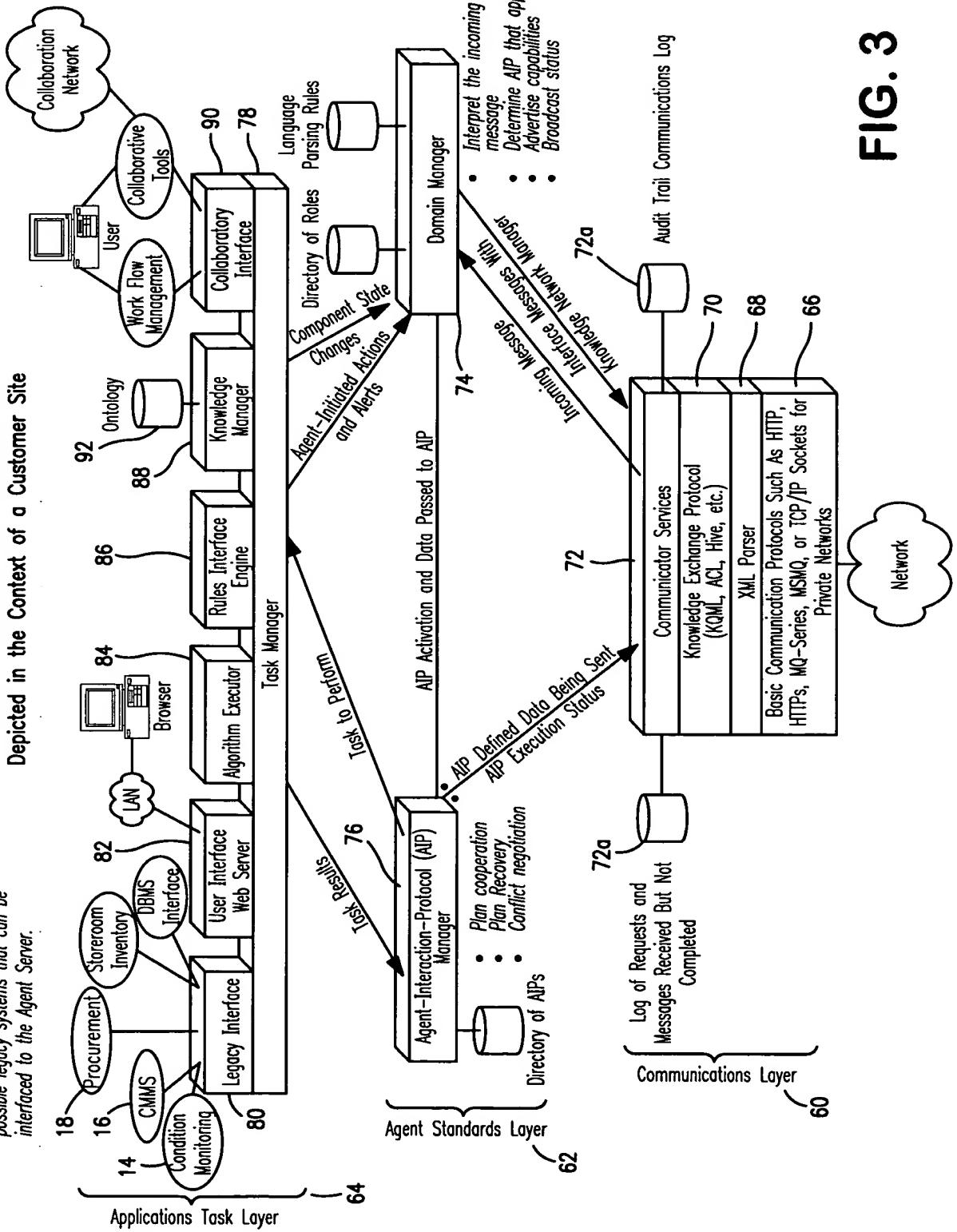


**FIG. 2**



*note – This is just a sampling of the possible legacy systems that can be interfaced to the Agent Server.*

## Agent Server Components Depicted in the Context of a Customer Site

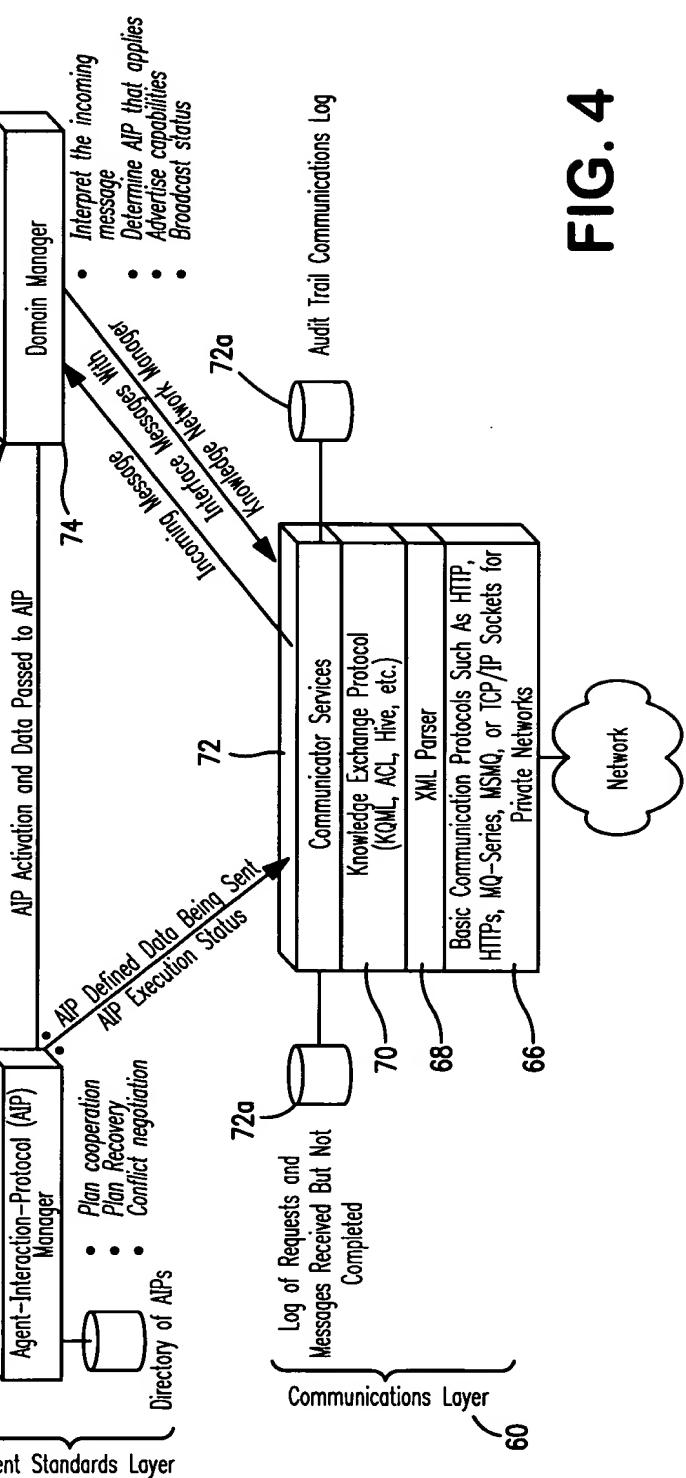
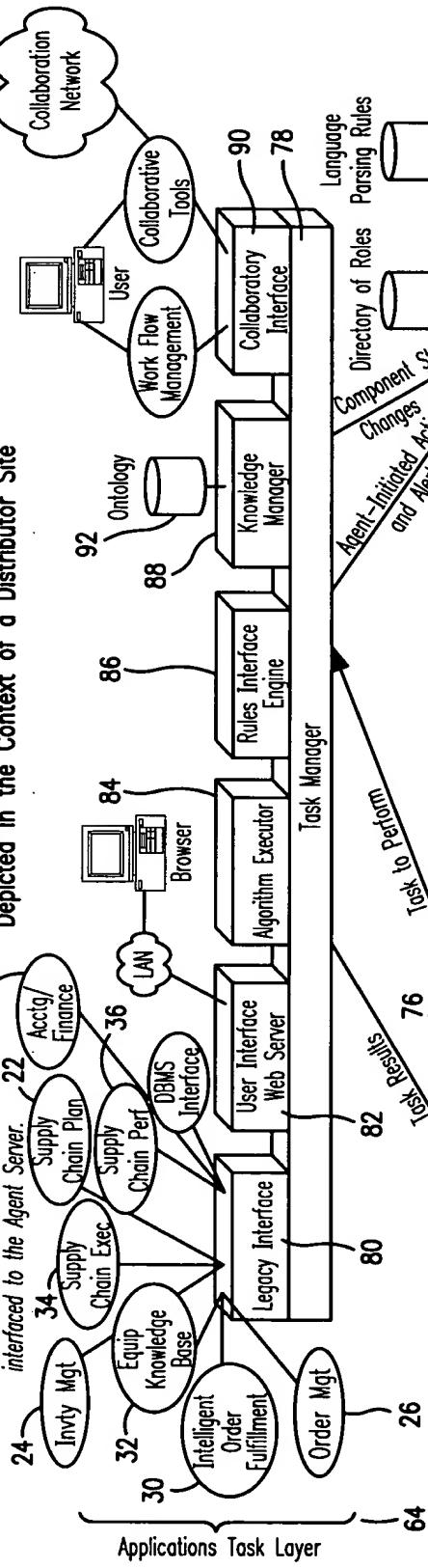


3  
FIG.



### Agent Server Components Depicted in the Context of a Distributor Site

note - This is just a sampling of the possible legacy systems that can be interfaced to the Agent Server.

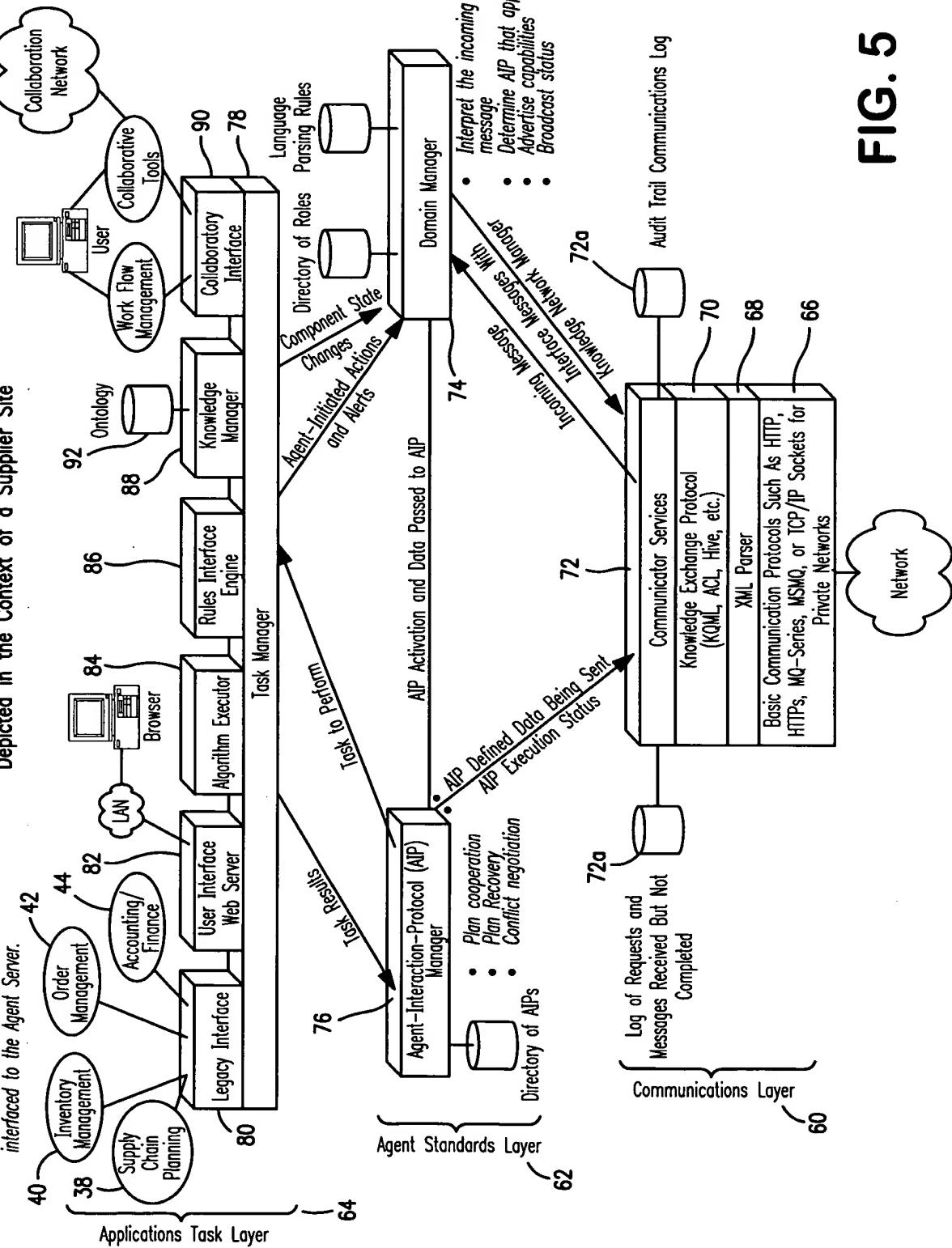


**FIG. 4**



### Agent Server Components Depicted in the Context of a Supplier Site

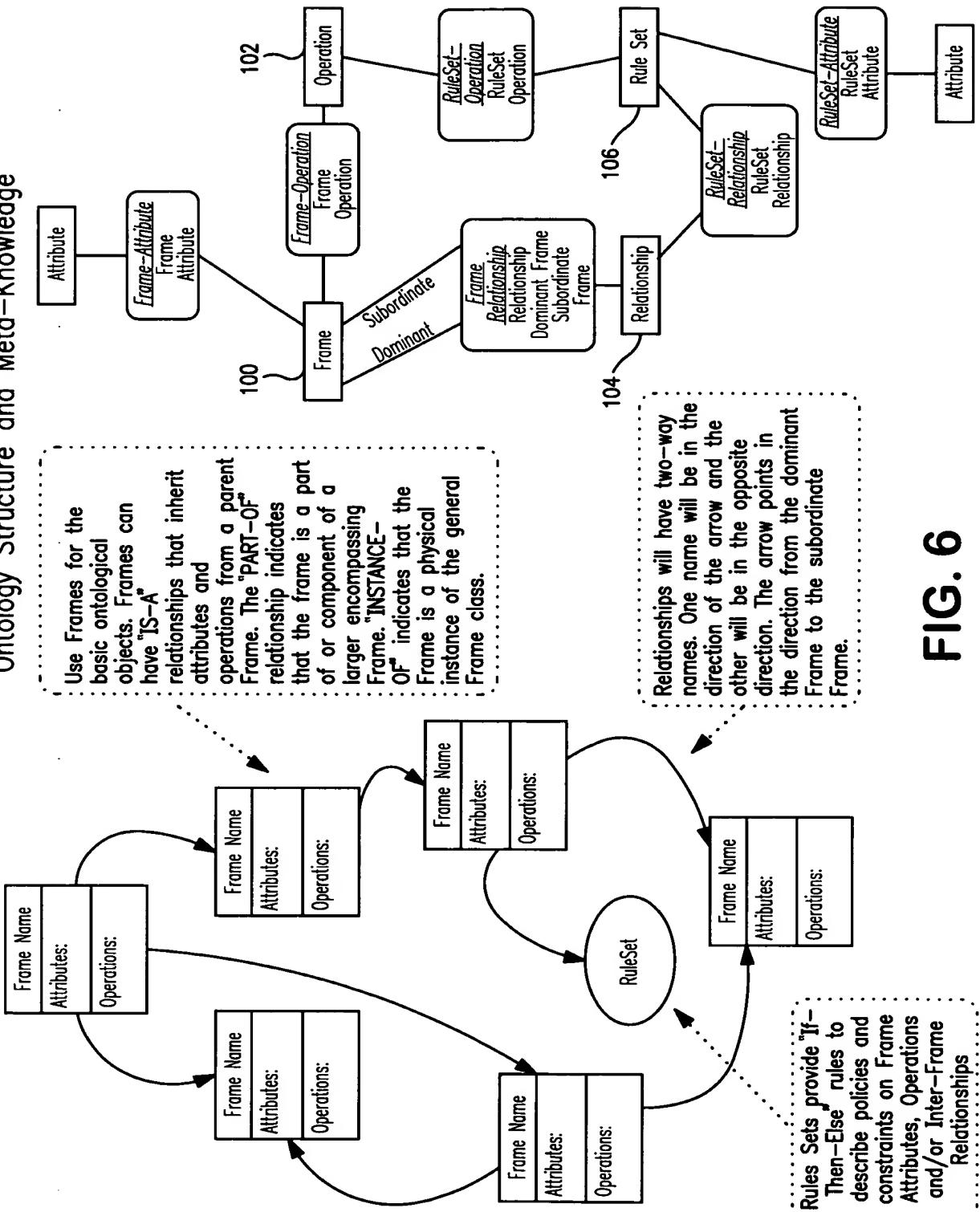
*note - This is just a sampling of the possible legacy systems that can be interfaced to the Agent Server.*



**FIG. 5**



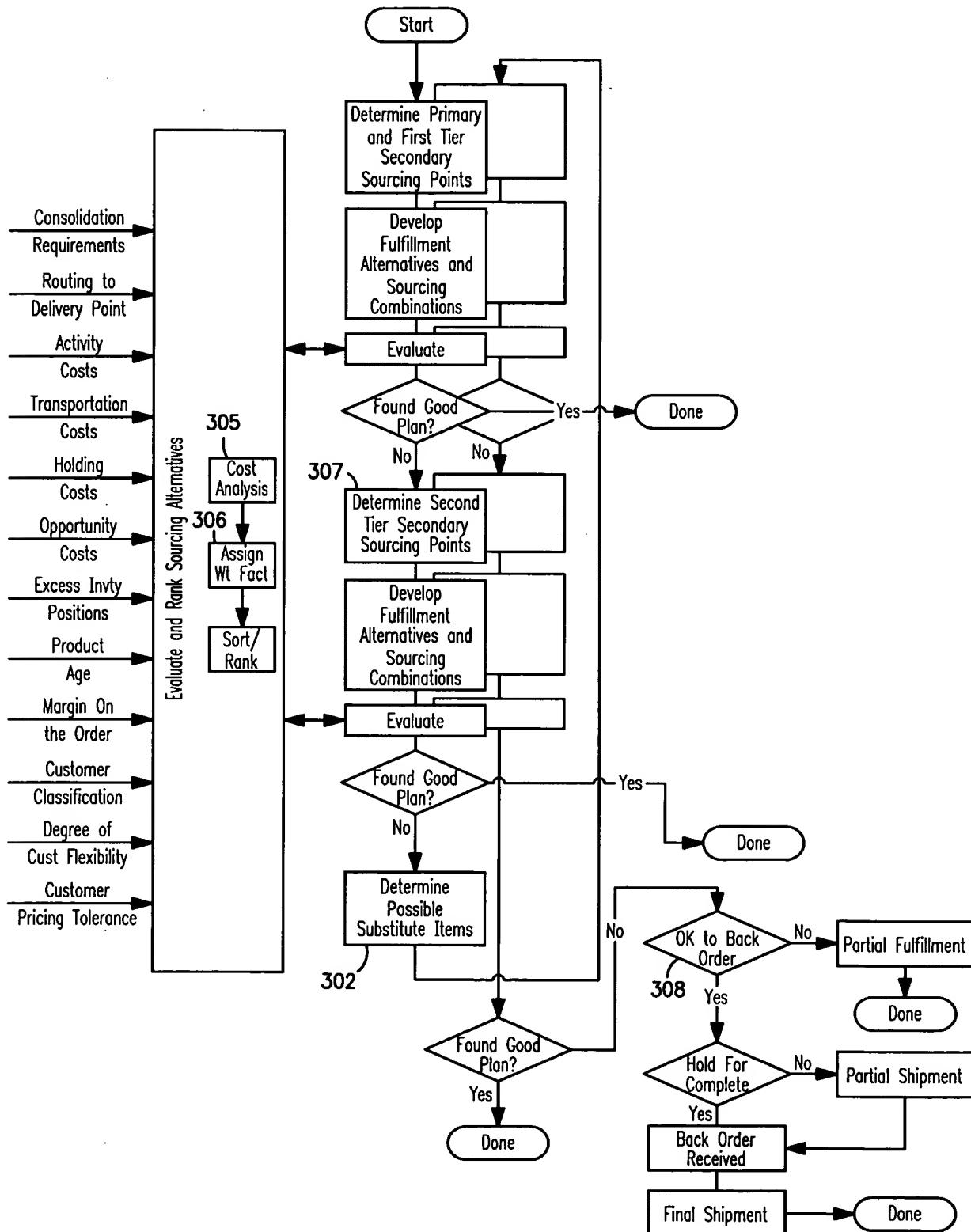
Ontology Structure and Meta-Knowledge



6  
Fig.



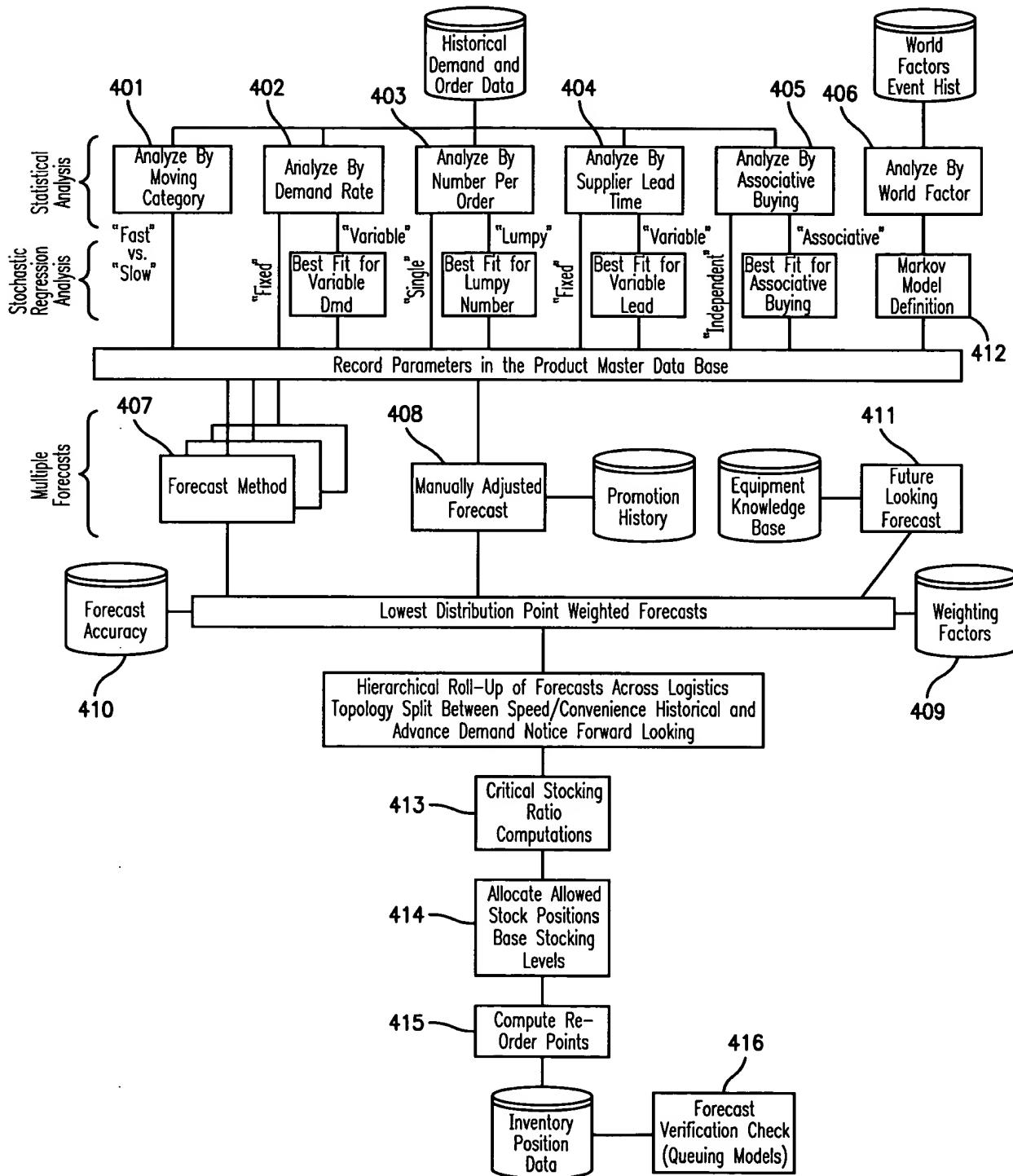
## Intelligent Order Fulfillment Planning



**FIG. 7**



## Inventory Management



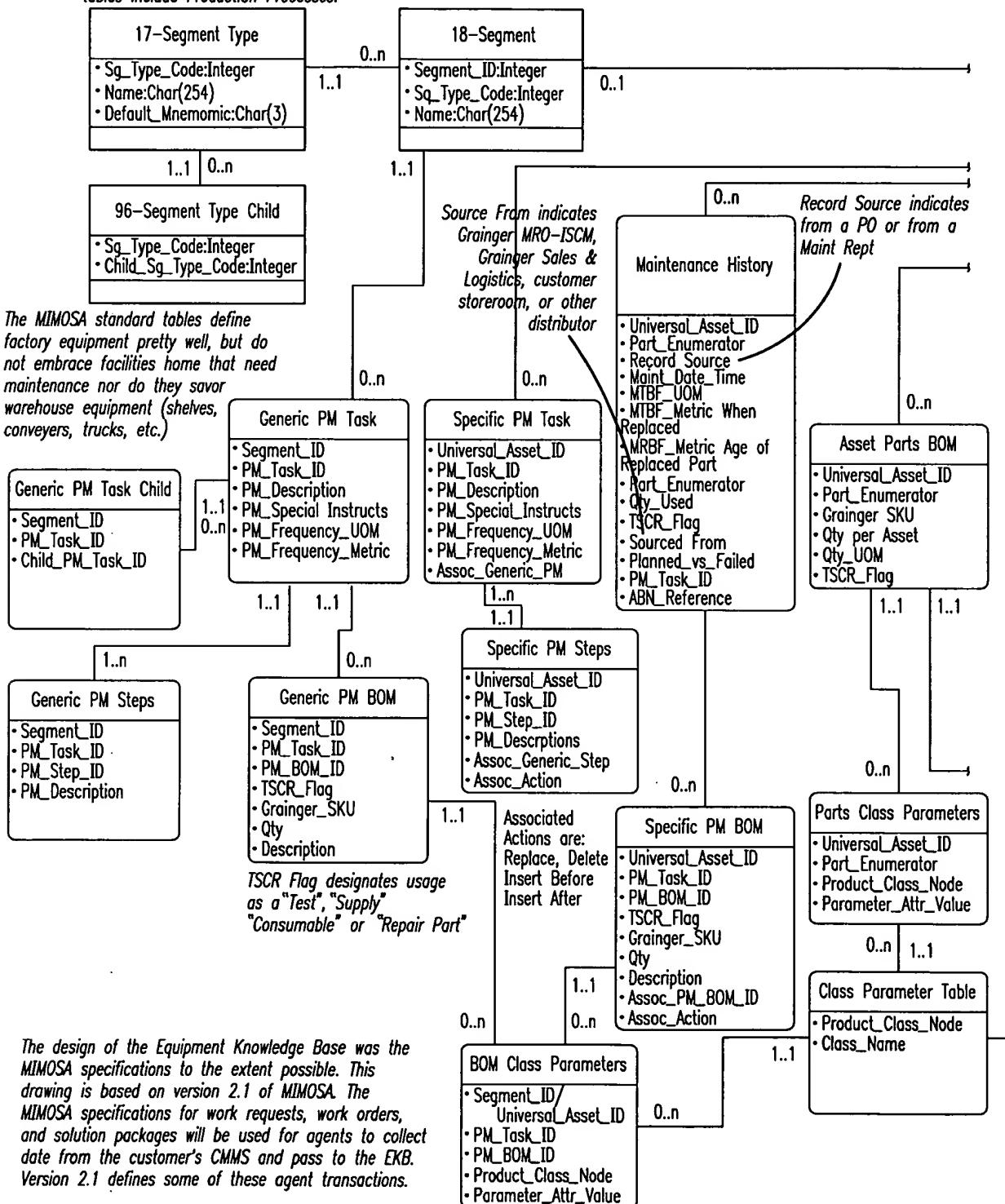
**FIG. 8**



## MRO ISCM – Equipment Knowledge Base

### Generic Equipment

Note—MIMOSA suggests using Table 31—Asset Type and Table 99 Asset Type Child instead of the segment type tables. Schemes are the same, but the segment tables include Production Processes.



**FIG. 9-1**



## MRO ISCM – Equipment Knowledge Base

### Specific Equipment Instances

The Universal Asset 10 is not part of the MIMOSA specifications but it is used to uniquely identify the asset within the system. The Asset\_ID is only unique within Asset\_Org\_Site

0..n

1..1

1..1

37-Asset	
• Universal_Asset_ID:Longinteger	
• Asset_Org_Site:Integer	
• Asset_ID:Integer	
• Sg_Type_Code:Integer	
• User_Tag_ID:Char(254)	
• Name:Char(254)	
• ML_Dune_Code:Integer	
• Model_Number:Char(254)	
• Revision_Number:Char(254)	
• Serial_Number:Char(254)	
• GraingerSKU:Char(18)	

A Asset\_Org\_Site of rate indicates the record which compiles date for the secumulation of all instances across all organizations and sites

13-Site	
• Site_Code:Integer	
• Grainger_Customer_ID:Char	
• Company_Name:Char(254)	
• Site_Name:Char(254)	
• Phys_Address:Char(254)	
• Phys_City_Name:Char(60)	
• Phys_State_Abbrev:Char(2)	
• Phys_Postal_Code:Char(10)	
• Phys_Country_Abbrev:Char(3)	
• Business_Description:Char(254)	
• Primary_SIC:Char(8)	

38-Asset Child	
• Asset_Org_Site:Integer	
• Asset_ID:Integer	
• Child_Asset_ID:Integer	
• Ordering_Sequence:Integer	

The UOM for Mean Time Between failure will be implemented as extensions to the MIMOSA Engineering Units Table (e23). Examples of the MTBF\_UOM might be: Calendar based metrics (year, quarter, month, day, hour, min, etc.); Operating time (as opposed to calendar time) such as operating hours, operating days, etc.; Usage metrics such as number of starts, degree days, units of production, sites; Tolerance metrics where the equipment needs to stay within a specified range.

MTBF Data	
• Universal_Asset_ID	
• Part_Enumerator	
• Cust_Replicate_Data	
• MTBF	
• MTBF_UOM	
• MTBF_parameters and coefficient of determination for linear, logarithmic, exponential, geometric, and Weibull models.	

Class Attribute Table	
• Product_Class_Node	
• Attribute	
• Attribute_Type	
• Low_Attr_Value	
• High_Attr_Value	

Attribute Value Table	
• Product_Class_Node	
• Attribute	
• Allowed_Value	

16-Manufacturer Table	
• M1_Dune_Code:Integer	
• Manuf_Trade_Name:Char(254)	
• Company_Name:Char(254)	
• Phys_Addr:Char(254)	
• Phys_City_Name:Char(60)	
• Phys_State_Abbrev:Char(2)	
• Phys_Postal_Code:Char(10)	
• Phys_Country_Abbrev:Char(3)	
• Primary_Contract:Char(60)	
• Phone_Number:Char(10)	
• FAX_Number:Char(10)	
• Email_Addr:Char(80)	

41-Asset Num Table	
• Asset_Org_Site:Integer	
• Asset_ID:Integer	
• Eng_Unit_Type_Code:Integer	
• Data_Value:Double	

42-Asset Char Table	
• Asset_Org_Site:Integer	
• Asset_ID:Integer	
• Eng_Unit_Type_Code:Integer	
• Data_Value:Char(254)	

Asset Part Usage History	
• Universal_Asset_ID	
• Part_Enumerator	
• Maint_Date/Time	
• MTBF – Metric at replacement	
• MTBF_Metric age of replaced_part	
• MTBF_UOM	
• Qty Used	
• Qty UOM	

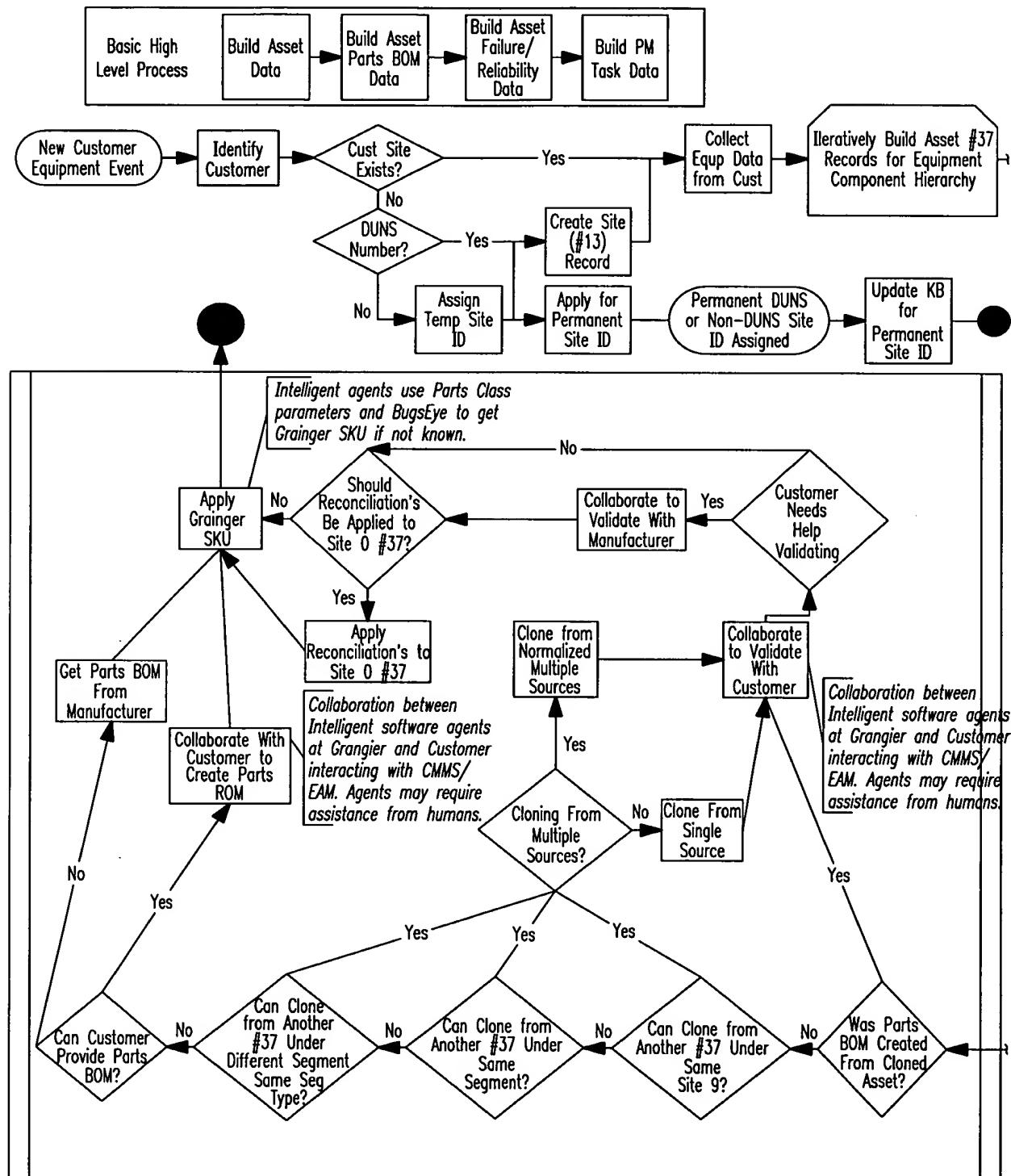
Attribute Value Table	
• Product_Class_Node	
• Attribute	
• Allowed_Value	

23-Eng Unit Table	
• Eng_Unit_Type_Code:Integer	
• RU_Type_Code:Integer	
• Muk_Fact_To_Ref:Double	
• Refer_Off_To_Ref:Double	
• Name:Char(254)	
• Abbrev:Char(254)	

**FIG. 9-2**



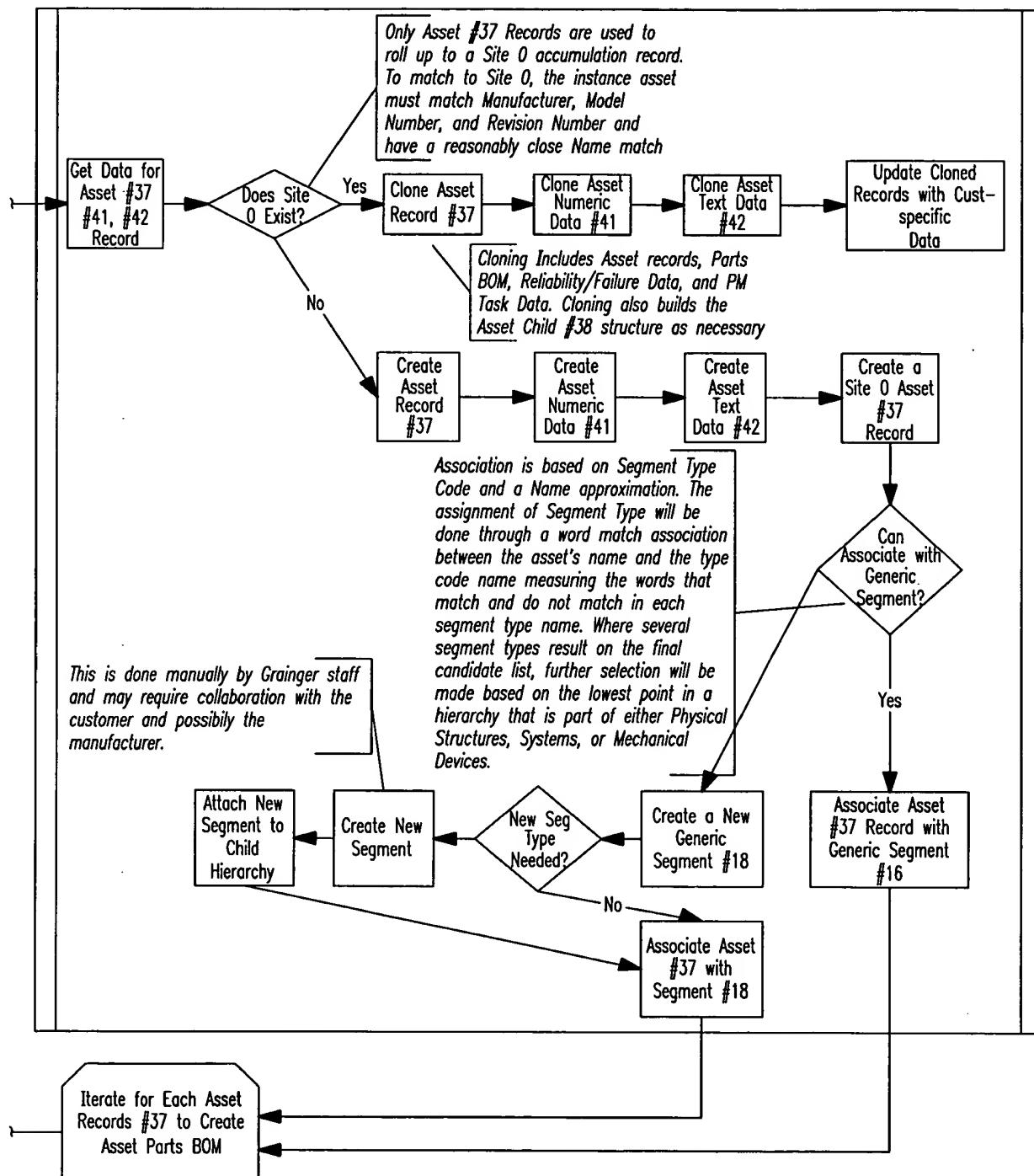
## New Customer Equipment Data Added to Equipment Knowledge Base



**FIG. 10a-1**



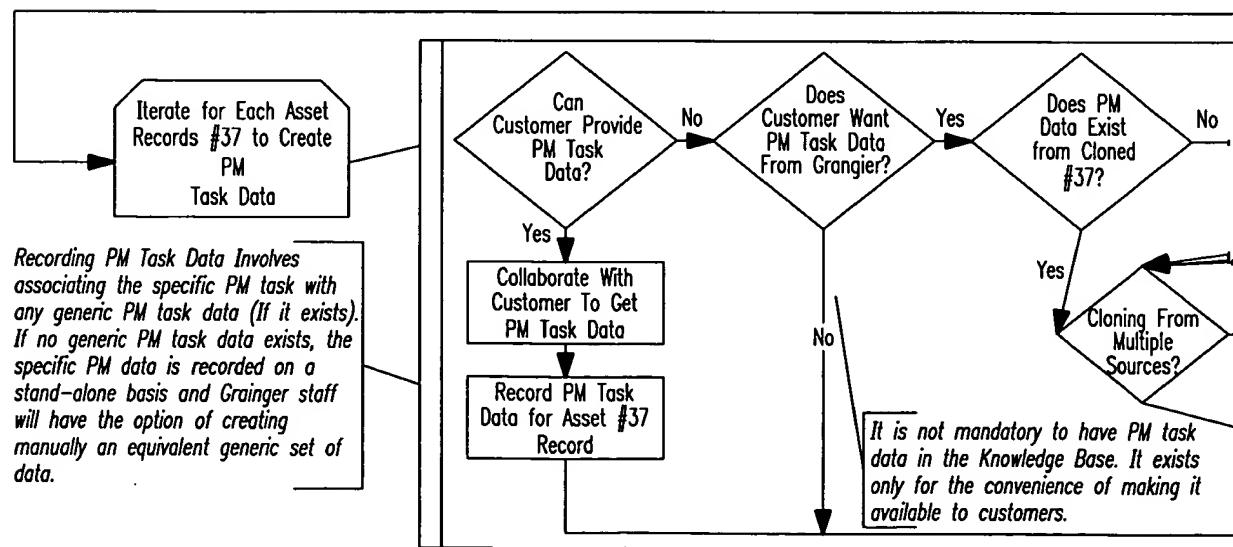
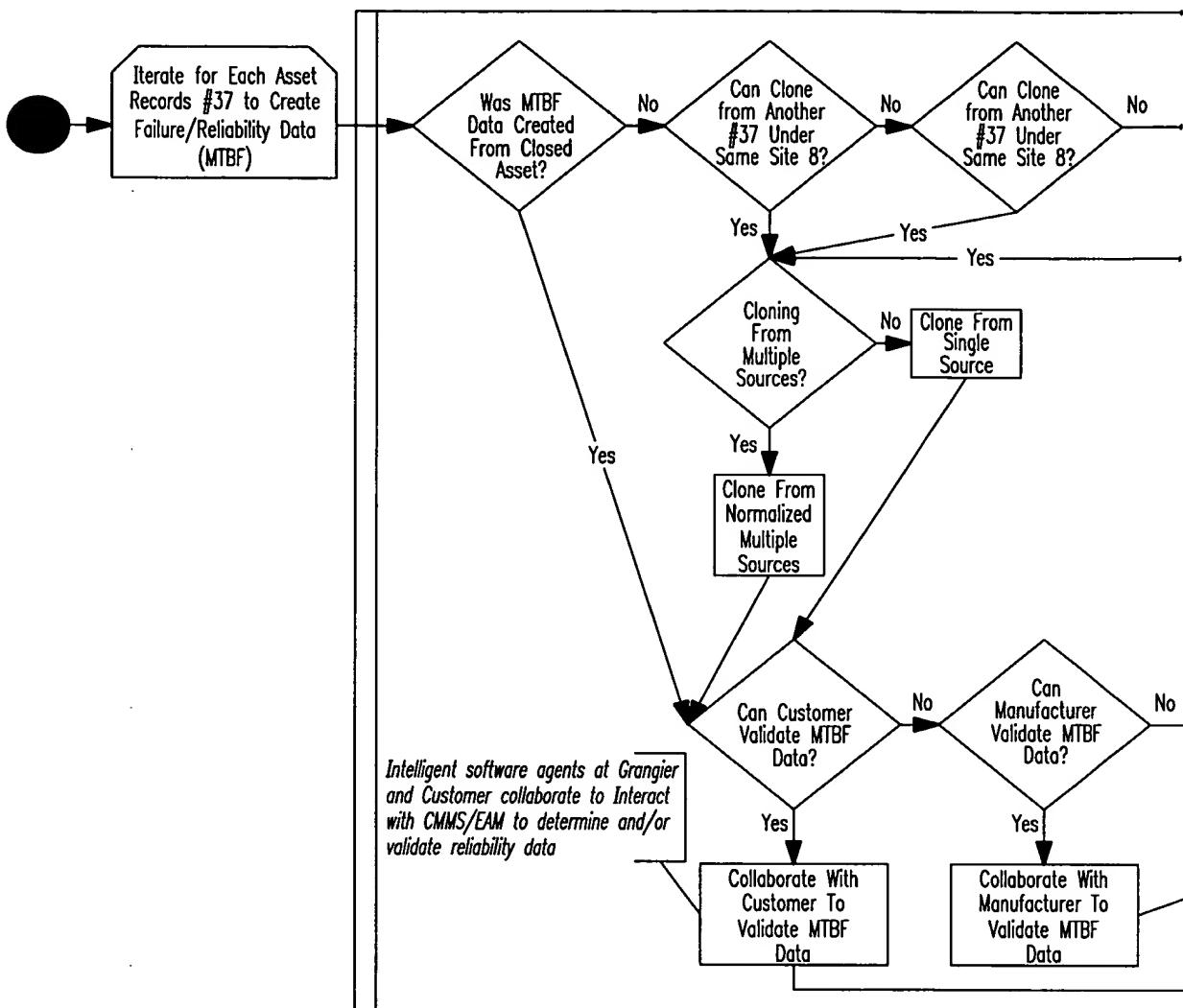
## New Customer Equipment Data Added to Equipment Knowledge Base



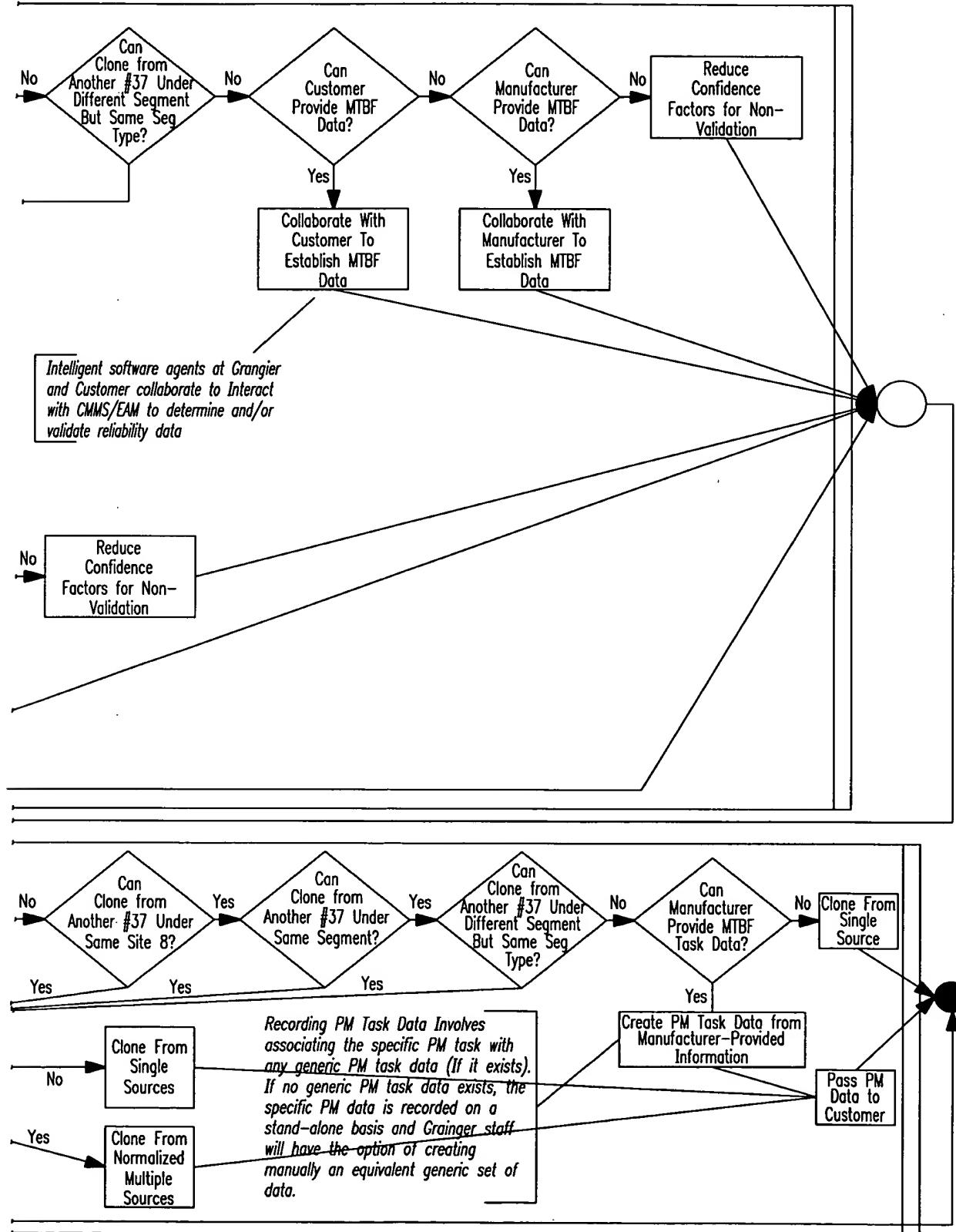
**FIG. 10a-2**



## New Customer Equipment Data Added to Equipment Knowledge Base (cont)



**FIG. 10b-1**

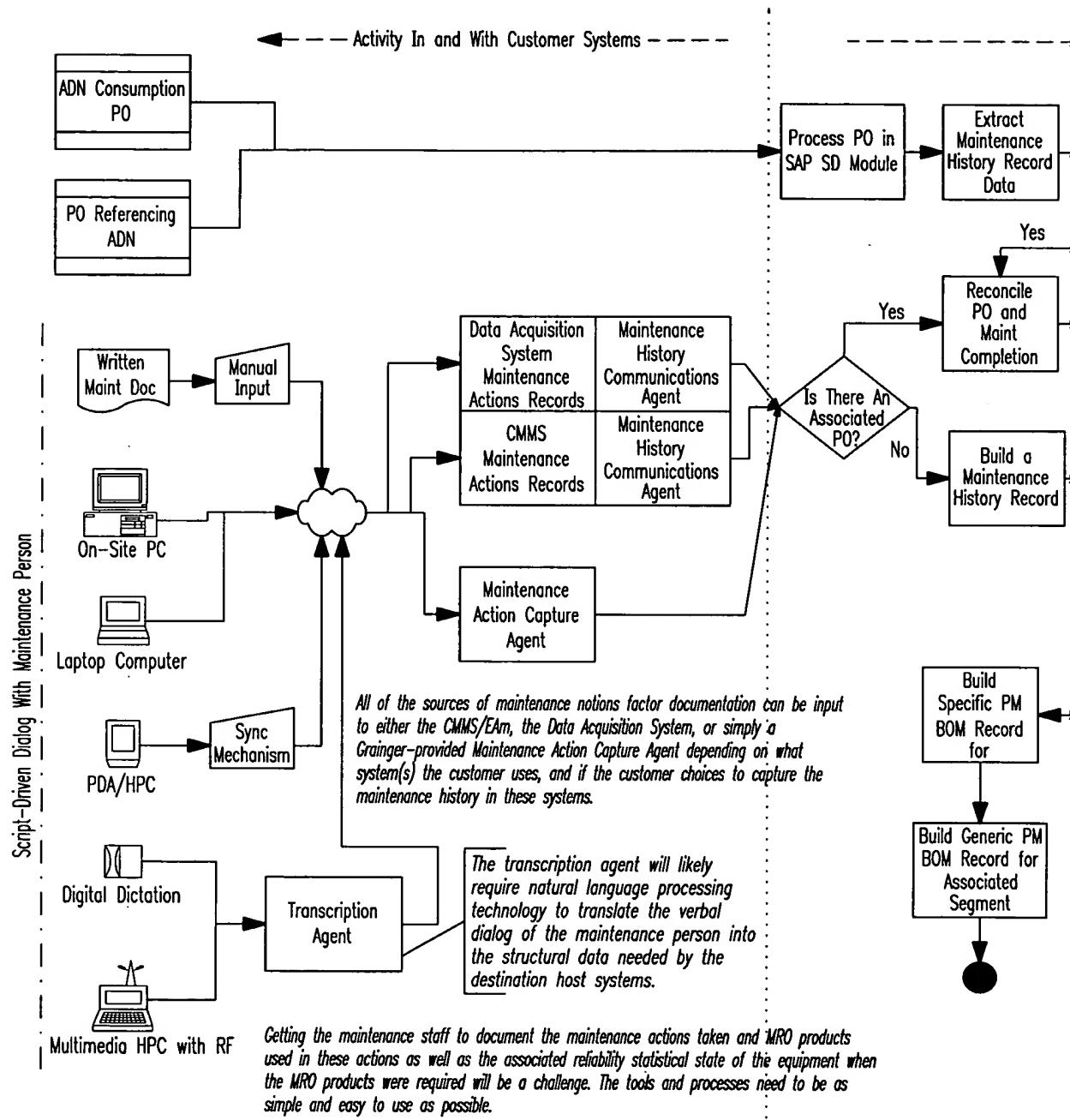


**FIG. 10b-2**

EAM system in a form acceptable to that system.



## Record Maintenance Results in the Equipment Knowledge Base



**FIG. 11-1**



## Record Maintenance Results in the Equipment Knowledge Base

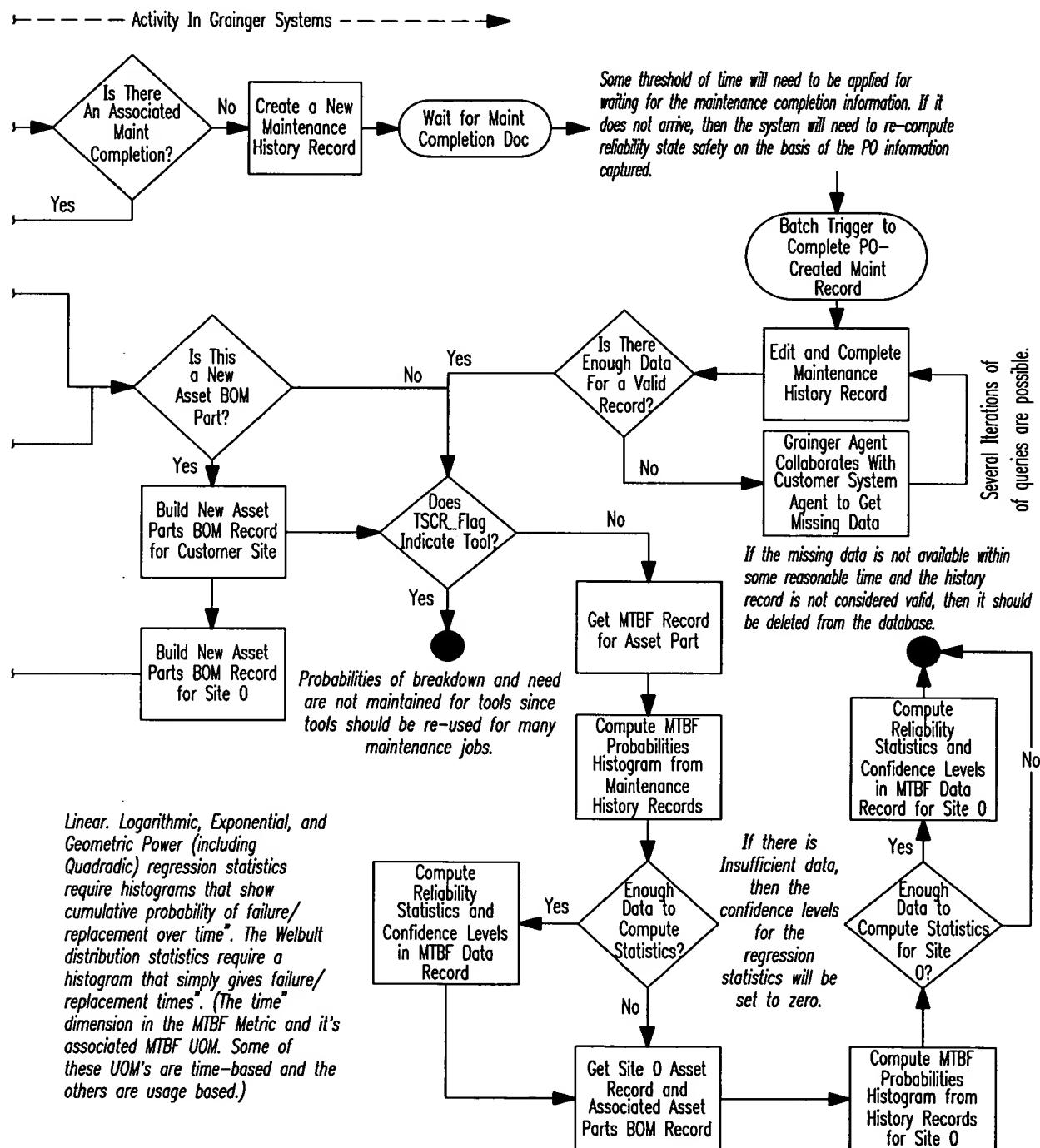
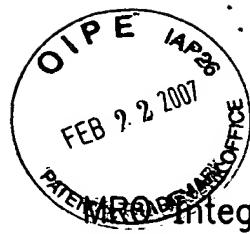
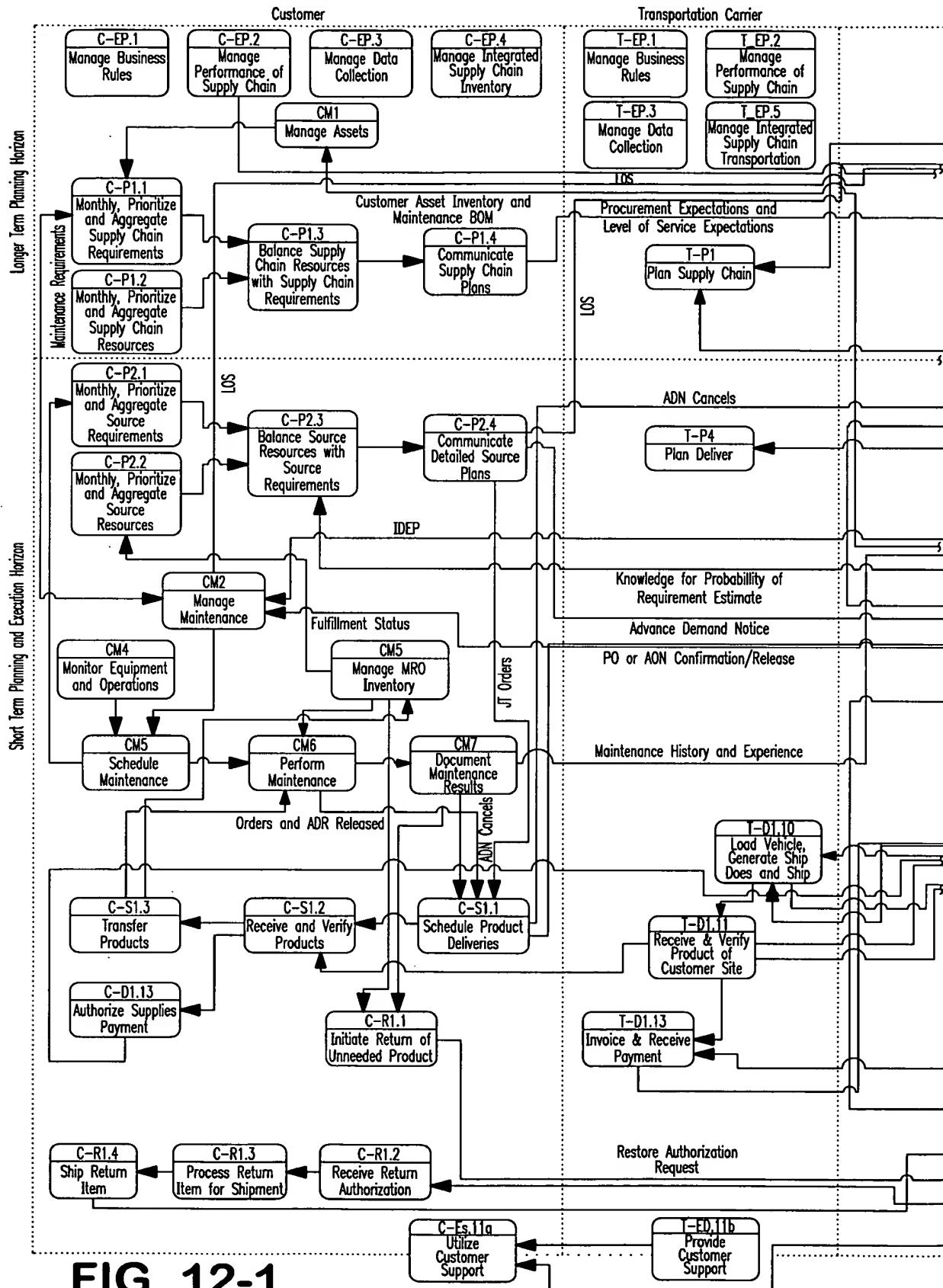


FIG. 11-2



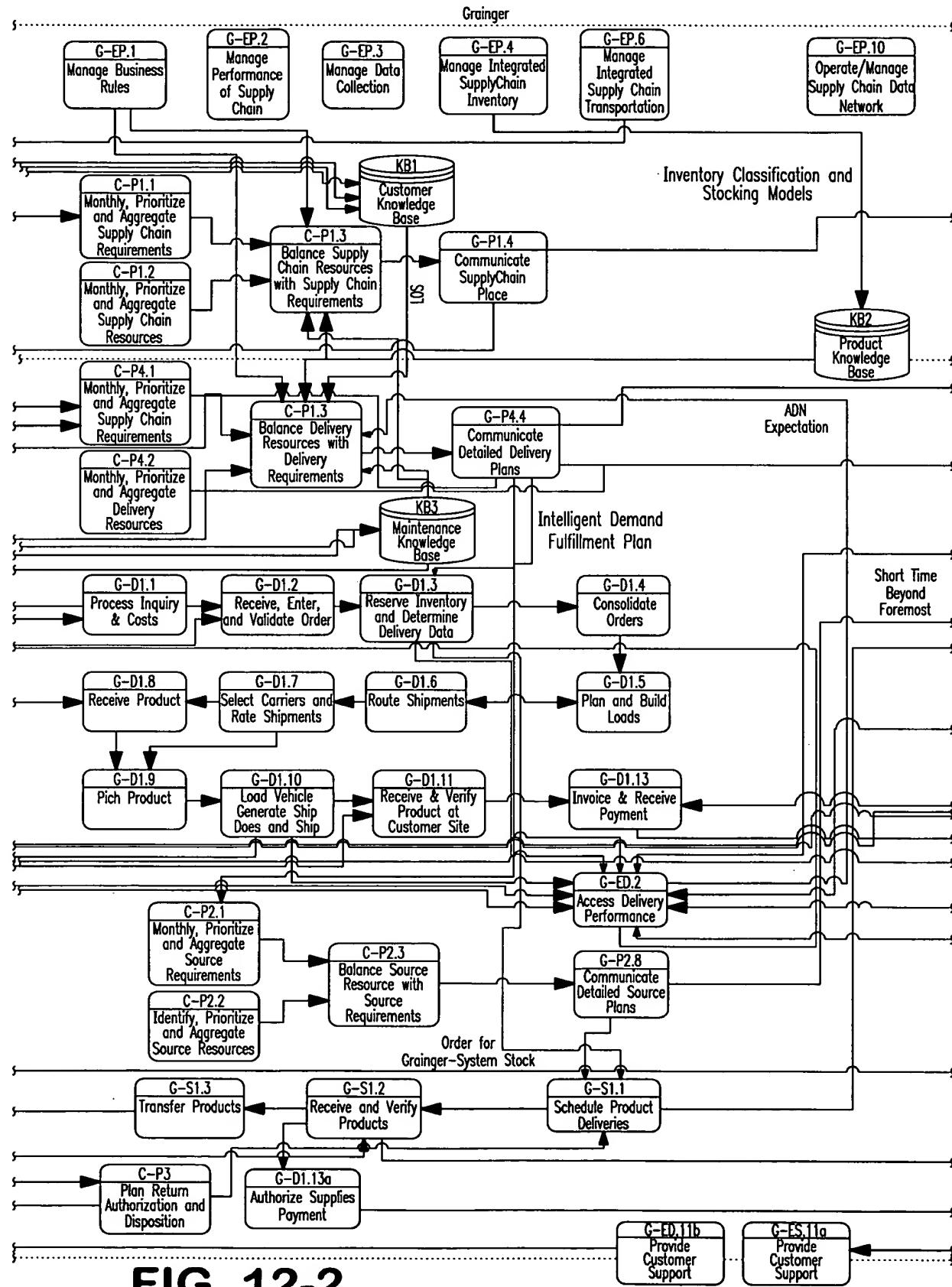
## Integrated Supply Chain Management Environment and System



**FIG. 12-1**

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## MRO Integrated Supply Chain Management Environment and System





MRO Integrated Supply Chain Management Environment and System

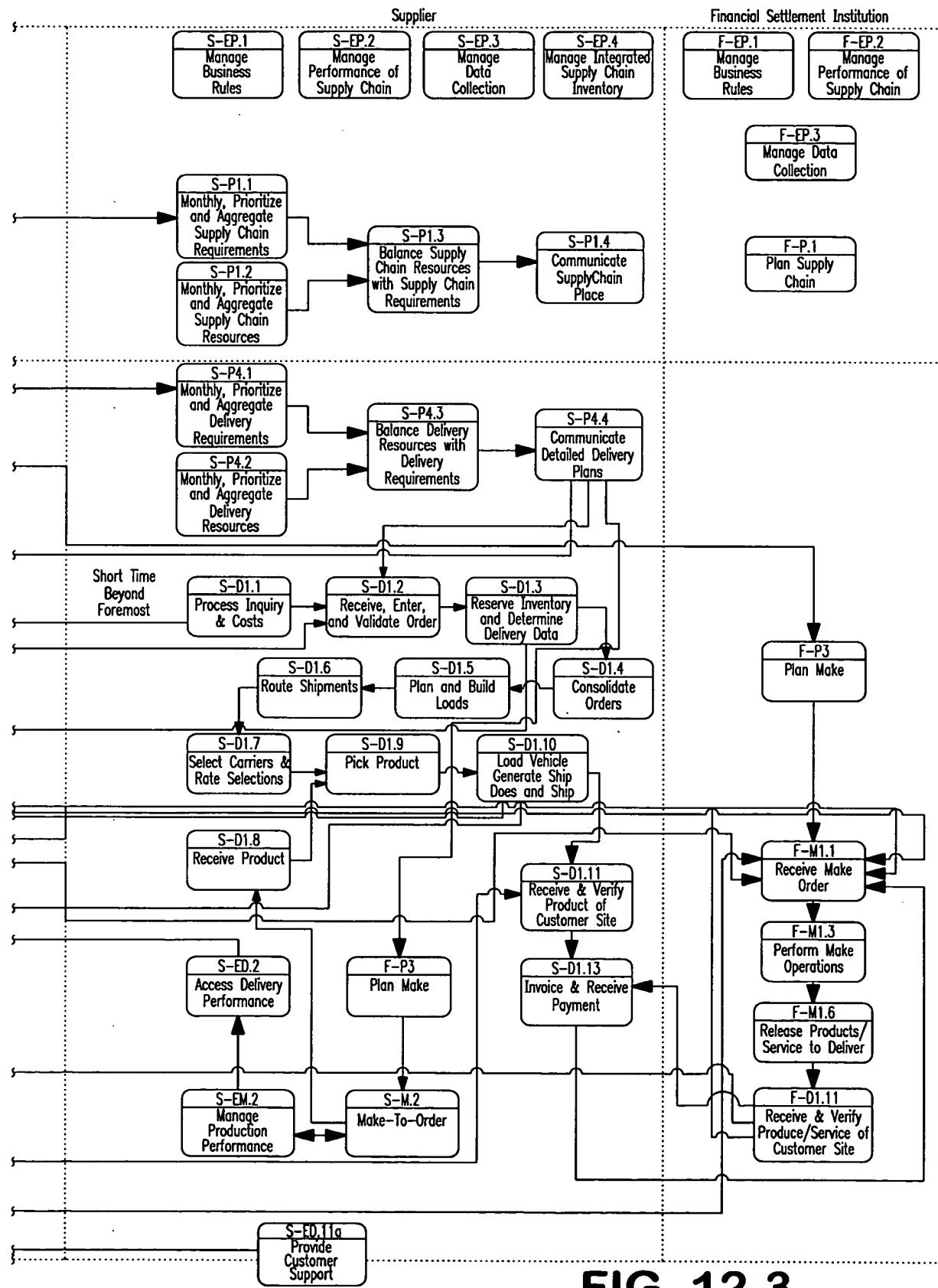
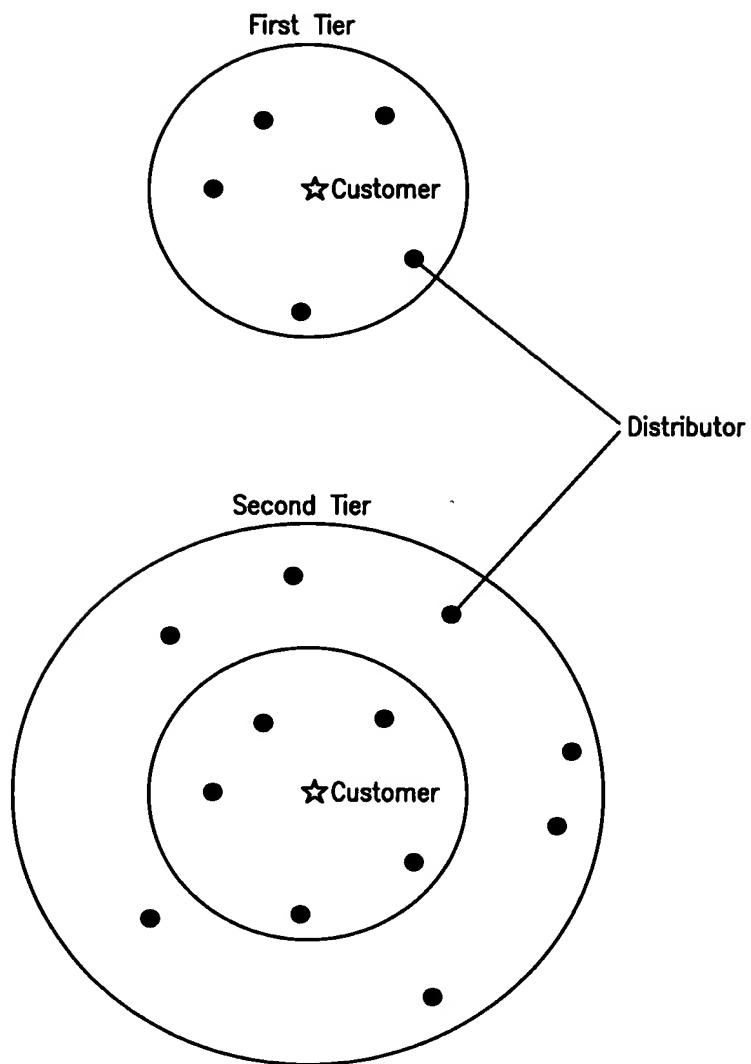


FIG. 12-3



**FIG. 13**